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**microRNAs and cilia: An ancient connection.**

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**Public Summary:**

Our recent CIRM-funded study (Song et al, Nature 510: 115-20, 2014) showed that members of the microRNA family miR34-449 help to control assembly of motile cilia, organelles that are responsible for cell motility and extracellular fluid movement. Mice deficient for all members of the miR34-449 family exhibited reproductive and respiratory dysfunction due to defective motile cilia. This review discusses evolutionary conservation of the miR34-449 family's role in formation of motile cilia in other vertebrates such as frogs and fish, and potentially in animals as diverse as sea urchin and worm larvae. It also summarizes findings suggesting the contribution of other microRNA families to formation of other ciliated cell types.

**Scientific Abstract:**

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